

BENESH, Konrad [Benes, K.]; SHUFA, Yu.V. [translator]

Paleomycology as a new trend in microscopic studies of coal.  
Izv. AN SSSR. Ser. geol. 25 no.11:47-52 N '60. (MIRA 13:11)

1. Ostravskiy gornyy institut, Chekhoslovakiya.  
(Mycology) (Coal geology)

SHUFCHUK, B.

What has the consolidation of construction management effected.

Fin.SSSR 17 no.8:59-60 Ag '56.

(MIRA 10:12)

(Construction industry)

SHUFCHUK, B.

Eliminating superfluous supervision. Sots.trud. no.1:  
133-134 Ja '57. (MLRA 10:4)

1. Glavnyy bukhgalter Kuybyshevskogo stroitel'nogo upravleniya  
tresta No. 25.

(Kuybyshev--Construction Industry)

SHUBOTA, P.; KORYAGIN, I.; SHUFCHUK, B.

Improve and simplify accounting in the construction industry.  
Bukhg.uchet 16 no.3:10-15 Mr '57. (MLRA 10:5)  
(Construction industry--Accounting)

SHU'CHUK, B.

Positive results. Fin..SSSR 19 no.1:63 Ja '58. (MIRA 11:2)

1.Glavnyy bukhgalter upravleniya stroitel'stva Omskogo sovnarkhoza.  
(Omsk Province--Industries)

SHUPCHUK, B.

Work improvement is the way to reduce personnel. Sots.trud 4  
no.11:136-137 N 59. (MIRA 13:4)

1. Glavnyy bukhgalter 6-go rayona "Omskstroya."  
(Omsk Province--Construction industry--Accounting)

SHUTCHUK, B.; MISHUKOV, A.; TYUTRIN, I.; POLAGIN, I.

Readers' suggestions. Fin. SSSR 21 no.8:79-81 Ag '60. (MIRA 13:8)  
(Finance)

SHUTCHUK, Boris Osipovich; AVETISYAN, Ye., red.

[Discussions on the economics of construction] Besedy po  
ekonomike stroitel'stva. Moskva, Politizdat, 1965. 223 p.  
(MIRA 18:6)

SHUFER, R. L.

1121

The preparation of mixed sera. R. L. Shufel, V. D. Gekker and G. A. Kurgenski. *Zhur. Mikrobiol. Epidemiol. Immunol. Infektsion.* 10, 207-9 (1937). Simultaneous immunization of horses with diphtheria and dysentery antigens yielded a serum contg. diphtheria and dysentery antitoxins which could be sepl. by adsorption. S. A. Kartala

ASB-35A METALLURGICAL LITERATURE CLASSIFICATION

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

BEYLINSON, A.V.; TROITSKIY, V.L.; VITOKHINA, T.A.; KAULEN, D.R.; SHUFER, R.L.;  
ZAGREBEL'NAYA, T.M.

~~Cocaine~~-irradiation as a sterilization factor in the process of preparing  
purified sera. Zhur.mikrobiol., epid. i immun. 32 no.11:6-12 N '61.  
(MIRA 14:11)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei AMN SSSR.  
(SERUM) (RADIATION STERILIZATION)

SHUFINA, M.M.

Case of acute poisoning with hydrogen arsenide. Nauch. trudy Riaz.  
med. inst. 15:175-178 '62. (MIRA 17:5)

1. Klinika propedevtiki vnutrennikh bolezney (zav. kafedroy -  
prof. Ye.N.Artem'yev) Ryazanskogo meditsinskogo instituta  
imeni Pavlova i / Gorodskaya klinicheskaya bol'nitsa Ryazani  
(glavnyy vrach - zasluzhennyy vrach RSFSR N.I.Popov).

SHUFLAT, A.N.

Basic elements of the ballistocardiogram in bronchial asthma.  
Nauch.trudy L'vov.obl.terap.ob-va no.1:120-123 '61.

(MIRA 16:5)

1. Kafedra propedevticheskoy terapii lechelnogo fakul'teta  
L'vovskogo meditsinskogo instituta (zav. kafedroy - dotsent  
V.I. Chernov).

(BALLISTOCARDIOGRAPHY) (ASTHMA)

L 16714-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 ESD(t)/ESD(c)/ESD(ga)/SSD/AFWL/  
 ASD(a)-5/AFMD(t)/AFETR/RAEM(a) RM  
 ACCESSION NR: AR5000775 S/0058/64/000/010/D025/D025

SOURCE: Ref. zh. Fizika, Abs. 10D192

AUTHORS: Korshunov, A. V.; Solov'yev, L. S.; Shuffledovich, V. I.; Nekoshnova, N. S.

TITLE: Infrared absorption spectra of certain substances with hydrogen bonds in different aggregate states

CITED SOURCE: Tr. Sibirsk. tekhnol. in-ta, sb. 36, 1963, 10-17

TOPIC TAGS: ir absorption spectrum, hydrogen bond, band spectrum, polarization

TRANSLATION: Infrared absorption spectra of phenol, resorcin, guaiacol, and naphthol in different aggregate states and at a temperature of liquid nitrogen are obtained. The polarization of the bands of the substances in the solid state was also investigated. It is found that in the liquid and particularly in the crystalline state the investigated substances have a few additional bands which are less intense than the fundamental bands

Card 1/2

L 16715-65

ACCESSION NR: AR5000773

was found to be  $5.65 \times 10^3$  neutrons/mole-roentgen.

SUB CODE: NP

ENCL: 00

Card 2/2

L 1300-66 EWT(m)/EPF(c)/EWP(j)/T RM

ACCESSION NR: AR5014391

UR/0058/65/000/004/D028/D028

SOURCE: Ref. zh. Fizika, Abs. 4D209

AUTHOR: Shufledovich, V. I.; Solov'yev, L. S.; Kuz'mina, Z. M.; Nekoshnova, N. S.; Sarapkin, P. S.; Korshunov, A. V.; Finkel'shteyn, A. F.

TITLE: Some spectral characteristics of the side chains in furane compounds

CITED SOURCE: Sb. Spektroskopiya. M., Nauka, 1964, 118-120

TOPIC TAGS: spectrographic analysis, Raman spectrum, IR spectrum, furane resin, aldehyde, conjugate bond system, alkyl radical

TRANSLATION: The authors studied the effect of the furane ring on the position of the stretching vibration bands of  $\text{CH}_3$ ,  $\text{C=O}$  and  $\text{C=C}$  groups in the Raman and IR spectra of 6 furane derivatives. The frequencies of the fundamental bands in the spectra of these compounds are given in the  $4050\text{--}216\text{ cm}^{-1}$  range. The position of symmetric and skew-symmetric stretching vibration bands in  $\text{CH}_3$  groups in the spectra of furfruylidene acetone, sylvan and 1-( $\alpha$ -furyl)-butanone-3 is practically the same as the ordinary position of the bands for this group. The position of stretching

Card 1/2

SHUFLYAT, A.N.

Neobenzonol for treating bronchial asthma. Vrach.delo no.12:1283-  
1285 D '57. (MIRA 11:2)

1. Kafedra terapii (zav. - dots. V.I.Chernov) lechebnogo fakul'teta  
L'vovskogo meditsinskogo instituta.  
(ASTHMA) (ANTISPASMODICS)

SHCHUKA, I.I. (Ed.)

Electric Motors, Synchronous

Introducing simplified schemes for starting synchronous motors. Prom. energ. 9 no.6, 1952

Monthly List of Russian Accessions, Library of Congress, September 1952, UNCLASSIFIED

SHUFMAN, L. I.

SHUFMAN, L. I. Coordination of New Electric Installation Projects (O Soglasovanii Proektov Novykh Elektroustanovok), p. 26

Coordination of electric installation projects is urged in order to achieve economical use of materials and equipment.

SO: PROMYSHLENNAYA ENERGETIKA, No. 11, Nov. 1952, Moscow (1613006)

SHUFMAN, L. I.

AID P - 951

Subject : USSR/Electricity

Card 1/1 Pub. 27 - 20/25

Authors : Shufman, L. I., Eng., Odessa and Gorenshteyn, M. D.,  
Eng., Novosibirsk

Title : Requirements for synchronous motors and their operating  
and protecting circuits (article by I. A. Syromyatnikov,  
Elektrichestvo, No. 5, 1953). Discussion

Periodical : Elektrichestvo, 10, 86-90, 0 1954

Abstract : Both authors consider the possible wide application of  
synchronous motors in all newly planned installations  
of non-regulated drives and present several conclusions.  
Two drawings.

Institution : Novosibirskenergo

Submitted : No date

SHUFMAN, L.I., inzhener.

Simplified starting of synchronous electric motors. Elek. sta. 25  
no. 7:45-47 J1 '54. (MLRA 7:8)

(Electric motors, Synchronous)

SHUFMAN, L.I., inzhener.

Ensure an adequate quality of modern electrical equipment.  
Prom.energ.11 no.2:28-29 '56. (MIRA 9:6)  
(Electric apparatus and appliances)

SHUPMAN, L.I., inzhener.

Simplify methods for calculating electric loads in industrial enterprises. Prom. energ. 12 no.7:29-30 J1 '57. (MLRA 10:8)

1. Treat "Elektromontash-54."  
(Electric power)

SHUFMAN, L.I., inzh.

Accidents in cable ducts and their prevention. Bezop.  
truda v prom. 4 no.7:21 J1 '60. (MIRA 13:8)

1. Chelyabinskiy trest Elektromontazh.  
(Cables)

SHUFMAN, L.I.; ZOTOV, B.K.

New method for the wiring of the secondary commutation wires on panels.  
Prom.energ. 16 no.5:40-42 My '61. (MIRA 14:7)  
(Electric apparatus and appliances)

SHUF'YAN, N. N.

F A 34/49136

USSR/Medicine - Fusospirochetosis, Jul/Aug 48  
Transmission  
Medicine - Fusospirochetosis,  
Etiology and Pathogenesis

"New Localization of Fusospirochetosis," Prof V.I.  
Fel'dman, N. K. Repkina, N. N. Shuf'yan, Hosp  
imeni Korolenko, Moscow Infection Clinic Hosp, 2 pp

*(and for in Lib)*  
"Vest Venerol i Dermatol" No 4

Describes two cases of Plaut-Vincent ulcers on  
the foot. Suggests that fusobacilli and spiro-  
chetes may have been transferred from mouth to  
foot via finger.

14/49136

1941

*Fragaria* sp., 10 near edge of origin, 20 cm.      *Cypripedium* *pinnatifidum*  
at edge, at least 45 m. N. & S. of it.      (NIP) 195)

Адрес: г. Ленинград, ул. Ломоносова, д. 24, к. 1, кв. 10.  
Тел. 2-10-10.

SHUGAL', B.Ye.; SAMOYLOV, V.M.; VOROB'YEV, S.S., inzh., red.;  
SAVKIN, I.P., inzh., red.

[Handbook on the use of cutting, percussion, upsetting and  
mechanized tools] Spravochnik po ekspluatatsii rezhushchego,  
udarnogo, vysadnogo i mekhanizirovannogo instrumenta. Mc-  
skva, Mashinostroenie, 1965. 343 p. (MIRA 18:10)

ORIGIN, ... L.

N. L. Murad, G. V. Gromovskiy. Sloistnye plastiki (Sheet Plastics), Goskhimizdat.

The booklet describes production of laminated plastics gotinaks, textolite, delta-cellulose, etc., and laminated products by molding, rolling and mechanical working; it discusses raw materials and technological factors with respect to physico-mechanical and electrical properties of the finished products. It also describes the mechanical and dielectric properties of laminated plastics and gives the principal methods of testing them.

The booklet is intended for engineers and technicians, employed in the plastics industry.

SO: Sovetskiye knigi (Soviet Books), No. 186, 1953, Moscow, (U-6472)

1ST AND 2ND ORDERS																										3RD AND 4TH ORDERS																									
PROCESSES AND PROPERTIES INDEX																																																			
<p>Adhesive. Ya. I. Shugal and G. S. Andrushevich  Rus. 51,000, May 31, 1967. An NH<sub>4</sub>OH soln. of casein  is used as stabilizer for an aq. suspension of finely  broken-up resole resin.</p>																																																			
<p>ASR-55A METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			
1ST AND 2ND ORDERS																										3RD AND 4TH ORDERS																									

SHUGAL, YA. I.

PA 23T4

USSR/Electricity  
Heating - Electrical Units  
Bakelite

Sep 1947

"Heat Treatment of Bakelite Cylinders by High Frequency Heating," Ya. I. Shugal, L. S. Levin, 2 pp

"Vestnik Elektro Promyshlennosti" No 9

The experimental part of these tests was conducted at the Research and Investigation Laboratory for the Electrification of Industries under the jurisdiction of the Ministry of Heavy Industries, by A. A. Aleksander, Engr. Well illustrated with tables and two curves of experimental data.

23T4

SHUGAL, YA. L.

PA47T40

USSR/Electricity

Jan 1948

Bakelite

Moisture Proofing

"Methods of Protecting Paper-Bakelite Lead-ins from Moisture," Ya. L. Shugal, Engr, Works 'Izolit' MEF, 1½ pp

"Vest Elektro-Prom" No 1

Use of condenser-type paper-bakelite lead-ins instead of porcelain lead-ins permits great reduction in weight of the parts. On the other hand, increase of moisture content of lead-ins will lower insulation. Author recommends treatment of such lead-ins with varnish to increase moisture resistance.

47T40

SHUGAL, Ya.L.; BARANOVSKIY, V.V.

[Laminated plastics] Sloistye plastiki. Moskva, Gos. nauchno-  
tekhn. izd-vo khim. lit-ry, 1953. 191 p. (MLRA 7:3)  
(Plastics)

SHUGAL, Ya. L.

AID P - 2350

Subject : USSR/Electricity

Card 1/1 Pub. 27 - 14/30

Authors : Shugal, Ya. L., and Smirnova, S. I. Engs., Moscow

Title : Film-coated cardboard, a new electrical insulating material

Periodical : Elektrichestvo, 5, 59-61, My 1955

Abstract : The authors describe the components and the method of production of resin-coated pressboards used for the insulation of windings of electric motors with class A insulation. The apparatus for gluing together the triacetate film and the pressboard was designed by Ya. G. Shugal and I. I. Lebedev. Two diagrams, 1 drawing.

Institution: None

Submitted : Je 24, 1954

SHUGAL, Ya.I., inzhener.

Glass-textolite, a new insulating material. Vest. elektroprom. 27  
no.12:49-52 D '56. (MIRA 10:1)

1. Vsesoyuznyy elektrotekhnicheskiy institut imeni Lenina.  
(Insulating materials)

Shigal, Ya. L.

6  
4  
1-4E2  
2-770

15  
Coating material for working surfaces. V. V. Baranov-  
skii, A. M. Cheruvakova, and Ya. L. Shigal. U.S.S.R.  
104,704, Jan. 26, 1967. The surfaces of molds, press-molds,  
and the like, are coated with a soln., emulsion, or suspension  
of organosilicon rubber in a liquid to which are added fillers  
and (or) vulcanization accelerators.  
M. Haseh

PM

gg

AUTHORS: Baranovskiy, V. V., Candidate of SOV/105-58-8-3/21  
Technical Sciences, Shugal, Ya. L., Engineer

TITLE: Plastics in Power Engineering (Plasticheskiye massy v energetike)

PERIODICAL: Elektrichestvo, 1958, Nr 8, pp. 12-16 (USSR)

ABSTRACT: About 80% of the entire output of plastic coating material and about 40% of all pressed plastic material of a thermoreactive type are consumed by electric industry. Plastics used in electrical engineering fall ~~into~~ three classes: 1) Plastic coatings. They are produced from fibrous filling substances and thermoreactive high-polymers. 2) Pressed plastics. They are made from thermoreactive high-polymers and various powder- or fibrous filling substances. The filling substance and the binding agent are homogeneously distributed in the material. 3) Cast plastics for electric insulation. They are based upon thermoplastic high polymers. A table contains a list of the most characteristic features of plastic materials used for electric insulation, which are utilized in Soviet industry. Good dielectric properties do not always coincide with optimum mechanical properties and optimum heat resistivity. Coating plastics and pressed plastics are used preferably in electrical

Card 1/2

Plastics in Power Engineering

SOV/105-58-8-3/21

engineering. Polyvinylchloride plastics are used most among all types of cast plastics as arc-suppression material in the tubes of lightning protectors. Parts of insulation equipment used now are described. Recently, the Institute of Glass Fibers together with several plants created specimens of heat-resistive glass textures and of combined asbestos-glass textures. They are not yet produced by industry. Possibilities for the further development of plastic materials are shown. The necessity of established experimental stations under the natural tropical conditions of India (Indiya) or of Vietnam (V'etnam) on the basis of international collaboration is emphasized. There are 5 figures and 1 table.

SUBMITTED: May 31, 1958

1. Electrical equipment--Insulation
2. Plastics--Performance
3. Plastics--Properties
4. Glass--Test results

Card 2/2

BARANOVSKIY, Valentin Viktorovich; SHUGAL, Yakov Lazarevich;  
SHISHKIN, S.V., red.; BORUNOV, N.I., tekhn. red.

[Laminated plastics for electrical engineering applications] Sloistye plastiki elektrotekhnicheskogo naznachenii. Moskva, Gosenergoizdat, 1963. 230 p. (Polimery v elektroizoliatsionnoi tekhnike, no.6) (MIRA 17:2)

L 27894-65 EWT(m)/EPA(s)-2/BPF(c)/T/EWP(j)/EPA(w)-2/EPR/EWA(c) Po-4/Pab-10/  
Pr-4/Ps-4/Pt-10 RPL WW/RM

ACCESSION NR: AP4012192

S/0191/64/000/002/0044/0048

AUTHORS: Andrianov, K.A.; Shugal, Ya.L.; Asnovich, E.Z.

TITLE: Glass textolite based on phenol-formaldehyde-resin modified  
with polyalumophenylsiloxane 1

SOURCE: Plasticheskiye massy\*, no. 2, 1964, 44-48

TOPIC TAGS: glass textolite, fiberglass, pheno formaldehyde  
fiberglass, phenol formaldehyde polyalumophenylsiloxane fiberglass,  
phenol formaldehyde polyalumophenylsiloxane resin property, fiber-  
glass property, water resistance, tensile strength, hardness,  
electric resistance, electric resistivity, heat stability, impact  
strength

ABSTRACT: Glass textolite (fiberglass) with improved electric in-  
sulating properties and high flexural and tensile strengths can be  
produced from phenol-formaldehyde resin modified with 0.5-10%  
polyalumophenylsiloxane. Incorporation of this siloxane improves  
adhesion of the binder to the filler, improves water-resistance  
tensile strength, hardness and electric insulating properties of the

Card 1/2

L 27894-65

ACCESSION NR: AP4012192

4  
fiberglass. The specific impact strength of fiberglass prepared with different amounts of the siloxane exceeds 50kgs.cm./cm<sup>2</sup>. Such fiberglass is thermally stable above 250C. Additional heat treatment (95-105C for 24 hours) of the glass textolite, prepared with 5-10% of the siloxane, increased the specific resistivity and the electric resistance of the fiberglass. "M. S. Gel'bras removed the lubricant." "S.I. Smirnova, B.M. Kil'berg and T.I. Il'ina participated in the work in the plant." Orig. art. has: 5 tables, 2 figures and 1 formula.

ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: MT, OC

NR REF SOV: 000

OTHER: 000

Card

2/2

SHUGAL, Ye.G.; RYABOV, O.M.; BOCHAROVA, T.V.; KISLYAK, L.M.; KOBEL'KOVA, A.M.; LYKOV, A.D.; MANYAKHINA, O.V.; SHLENOVA, T.G.; YAGUPOVA, Ye.I.; IVANOV, N.A.; RYBKIN, I.P.; KHOKHLOVA, P.Ye.; KHRUNTYAYEVA, A.S.; FROLOVA, M.I.; RAKOV, F.M., red.; MARCHENKO, V.A., red.; KOLPAKOV, B.T., red.; DEMINA, V.N., red.; MELENT'YEV, A.M., tekhn. red.

[Soviet commerce of the R.S.F.S.R.; a statistical manual] Sovetskaya torgovlia v RSFSR; statisticheskii sbornik. Moskva, Gosstat. izd-vo, 1956. 342 p. (MIRA 11:10)

1. Russia (1917- R.S.F.S.R.) Tsentral'noye statisticheskoye upravleniye.

(Commercial statistics)

GERSHENOVICH, E.S.; ERICHTSKAYA, A.A.; SHUGALEY, V.S.

Urea synthesis by brain sections. Dokl. AN SSSR 157 no. 2:  
464-466 J1 '64. (MIRA 17:7)

1. Predstavleno akademikom N.M.Sisakyanom.

ISACHENKO, Georgiy Ivanovich; KASSIS, Vadim Borisovich; SHUGALO, L.V.,  
red.; RAKOV, S.I., tekhn.red.

[Bhilai is a symbol of our friendship] Bkhilai - simvol nashei  
druzhby. Moskva, Izd-vo VTsSPS Profizdat, 1960. 46 p.  
(MIRA 14:4)

(Bhilai, India--Steelworks)  
(India--Economic assistance, Russian)

BIRYUKOV, Igor' Dmitriyevich; SHUGALO, L.V., red.; MALEK, Z.N., tekhn.red.

[Garibaldi star] Garibal'diiskaya zvezda. Moskva, Izd-vo  
VTsSPS Profizdat, 1960. 94 p.

(MIRA 14:2)

(Italy--Description and travel)

LISTOV, Vadim Vadimovich; SHUGALO, L.V., red.; RAKOV, S.I., tekhn.red.

[Along the roads of the new Cuba] Po dorogam novoi Kuby.  
Moskva, Izd-vo VTsSPS Profizdat, 1960. 152 p.

(MIRA 14:1)

(Cuba)

SHUGALOV, A.I.

Construction of industrial buildings on filled up ground. Stroi.  
prom. 32 no.6:46-47 Ja '54. (MIRA 7:6)  
(Building) (Foundations)

SHUMILY, A.I., Cand Tech Sci--(disc) *temperatures* "Cart in studies of the ~~the~~  
problem of the theory of elasticity." Len., 1958. 14 pp (Min of Higher  
Education USSR. Len Order of Labor Red Banner Construction Engineering  
Inst), 170 copies (EL,47-58,133)

- 48 -

SOV/124-58-7-7843

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 7, p 76 (USSR)

AUTHOR: Shugakov, A.I.

TITLE: The Application of the Principle of Reciprocity to the Solution of Some Temperature Problems of the Theory of Elasticity (Primeneniye printsipa vzaimnosti k resheniyu nekotorykh temperaturnykh zadach teorii uprugosti)

PERIODICAL: Nauchno-tekhn. inform. byul. Leningr. politekhn. in-t, 1957, Nr 8, pp 73-80

ABSTRACT: It is pointed out that the temperature problem of the theory of elasticity may be solved if the solution of Green's problem for the same body in the unheated state is known.

V.K. Prokopov

1. Elasticity--Theory 2. Elasticity--Temperature factors

Card 1/1

SHUGALOV, A.I.

Thermal stresses in blocks on rigid bases. Trudy LPI no.196:87-107  
'58. (MIRA 12:3)

(Strains and stresses)

LUTOVINOV, G.V., inzh.; SHUGALOV, L.I., inzh.

Reconstructing inspection gutters in electric locomotive repair  
stations. Transp. stroi. 8 no.10:25 0 '58. (MIRA 11:11)  
(Electric locomotives--Maintenance and repair)

PA 63/49T85

USSR/Medicine - Nervous System  
Medicine - Therapeutics

May 49

"Health Resort Treatment of Functional Dis-  
eases of the Nervous System," A. R. Shugam,  
Neurol Dept of Clinic, Gen Inst for Health Resorts,  
2 pp

"Sov Med" No 5

Proved that many cases of nervous disorders indicated  
satisfactory results after sulfur baths. Good re-  
sults were also obtained by sulfur-bath treatment  
from those with asthenia, neurosis, and other ner-  
vous conditions involving the peripheral nerves.

63/49T85

USSR/Medicine - Nervous System (Contd) May 49

No results were obtained from those with nervous  
disorders of purely psychic origin.

SHUGAM, A. R.

63/49T85

L 07268-67 EWT(1)/EWP(m)/EWT(m) WW/GD  
 ACC NR: A16025308 SOURCE CODE: UR/0000/66/000/001/0072/0081

AUTHOR: Proshutinskiy, A. P.; Shugam, R. A.; Shishov, V. P.

37  
 B+/

ORG: none

TITLE: Self oscillations in a natural circulation loop during boiling

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. leniye yadernymi energeti-  
cheskimi ustanovkami (Control of nuclear power plants), no. 1. Moscow, Atomizdat,  
 1966, 72-81

19

TOPIC TAGS: nuclear reactor coolant, boiling water reactor, nuclear safety, simulation test facility

ABSTRACT: The authors present the results of an investigation of the stability of a circulation loop by studying the self oscillations produced in two-phase systems under natural circulation, at pressures from atmospheric to ten atmospheres, and heat loads up to  $800 \times 10^3 \text{ kcal/(m}^2\text{hr)}$ . Principal attention was paid to the influence of the underheating of the water below saturation at the output in the heated section and of the pressure in the loop on the self oscillations, on their amplitude, on their frequency, and on the stability. The experiments were carried out in an experimental stand designed to investigate the hydrodynamics of two-phase streams in channels of various configurations. The tests consisted essentially of filling the stand with feed water and heating it electrically at different rates and under various pressures to disclose the conditions under which self oscillations in the liquid circulation

Card 1/2

1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
PROCESSED AND PROPERTY INDEX																			
<p>CA</p> <p>Measurement of small vapor pressures. I. Vapor pressures of naphthalene, camphor and glycerol. A. A. Zil'berman-Granovskaya. <i>J. Phys. Chem.</i> (U. S. S. R.) 14, 789-87 (1940).—An app. for accurate measurement of vapor pressures below 1 mm. by the method of diffusion through a small orifice is described. The vapor-pressure curve for Hg at temps. 0 to 50° so detd., <math>\log p = 7.2420 - (2080.77/T)</math>, is in satisfactory agreement with previous data. For naphthalene at 15-33° the data satisfy the equation <math>\log p = 10.40 - (3429/T)</math>; for camphor at 0 to 25°, <math>\log p = 11.352 - (3439.2/T)</math>; for anhydrous glycerol (after 8 redistns.) at 15 to 80°, <math>\log p = 0.8635 - (1067.4/T)</math>. II. Vapor pressures of cis and trans isomers. <i>Ibid.</i> 768-73.—The vapor pressures of cis-decalin and of trans-decalin in mm. <math>\times 10^4</math> are, resp.: 1.707, 1.922 at 21.2°; 3.080, 4.8880 at 32.7°; and 15.61, 19.05 at 47.0°; the <math>\log p - (1/T)</math> straight lines probably intersect near -10°. For the cis- and trans-<math>\beta</math>-allyldecalins, the vapor pressures in mm. <math>\times 10^4</math> are, resp.: 3.2, 3.7 at 23.2°; 9.40, 11.70 at 32.7°; 4.93, 5.87 at 47.0°; the <math>\log p</math> lines are parallel. For the cis-cis- and the trans-trans-dicyclohexyls the vapor pressures are, resp., in mm. <math>\times 10^4</math>: 1.20, 1.62 at 0°; 12.3, 15.8 at 23.25°; and 36.3, 34.6 at 32.7°; for the cis- and trans-dihydroxycyclohexanes; 6.59, 7.61 at 10.5°; 9.93, 11.24 at 21.3°; and 36.26, 40.67 at 47.0°.</p> <p>In each case the trans isomer has the higher vapor pressure, as predicted by Errera (C. A. 21, 800) from considerations of the elec. moments. III. Vapor pressures of the halogen-substituted benzenes. A. A. Zil'berman-Granovskaya and E. A. Shugam. <i>Ibid.</i> 1004-6.—The vapor pressures of several halobenzenes at temps. from -25 to +30° were detd. by diffusion through a small orifice. The values of the consts. A and B in the vapor-pressure equation, <math>\log p = A - (B/T)</math>, and the heats of vaporization L are, resp.: chlorobenzene, 7.532, 1949.5, 8.923; bromobenzene, 7.128, 1979.2, 9.01; iodobenzene, 6.691, 2057.2, 9.55; p-dichlorobenzene, 10.760, 2972, 13.6; p-dibromobenzene, 8.846, 3115.0, 14.26. F. H. Rathmann</p>																			
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																			
FROM SYNDICATE										FROM BOWLING									
<p>100000 111 011 011 011</p>										<p>100000 111 011 011 011</p>									

ZIL'BERMAN-GRANOVSKAYA, A. A.; SHUGAM, Ye. A.

Laboratory of Chemical Thermodynamics, Science Research Unit of Chemistry, Moscow State University, (-1940-)

"The Measurement of Small Vapor Pressures" Part III, "The Measurement of the Vapor Pressure of Halogen-Substitute Benzene."

Zhur. Fiz. Khim., Vol. 14, No. 7, 1940.

1ST AND 2ND YEARS

PROCESSES AND PROPERTIES INDEX

2

CA

The crystal structure of mercuric cyanide. G. S. Zhdanov and E. A. Shugan. *Doklady Akad. Nauk S.S.S.R.* 45, 312-14(1944); *Compt. rend. acad. sci. U.R.S.S.* 45, 395-6(1944) (in English). Although most of the observed scattering (cf. C.A. 21, 1310; 32, 7841\*) of x-rays by  $\text{Hg}(\text{CN})_2$  crystals is due to the Hg atoms, the cyanide groups are shown to have sufficient scattering power to make it possible to establish their exact position in the crystal lattice. J. W. Perry

COMMON ELEMENTS

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1ST AND 2ND YEARS

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FROM HOWARD

RELIST ONE ONE 151

The crystal structure of cyanides. II. Structure of cadmium cyanide. E. A. Shuganov and G. S. Zhdanov (Karpova Inst. of Phys. Chemistry, Moscow). *Acta Physicochim. U.R.S.S.*, 20, 847-51 (1945); cf. C.A. 37, 813<sup>c</sup>.—Cd(CN)<sub>2</sub> crystals were synthesized from gaseous (CN)<sub>2</sub> and Cd(OH)<sub>2</sub>. After filtration, crystals of 0.4 mm. were deposited from the soln. by drying. X-ray powder photographs were made from the white powder d. 2.32. The crystal structure thus detd. is isomorphous with Zn(CN)<sub>2</sub>. The space group is  $T_d$ . The dimensions of the body-centered cube are  $a = 6.32 \text{ \AA}$ ,  $N - 2, 4, 6, 8$ . Electronic structures are discussed. III. Structure of gold cyanide. G. S. Zhdanov and E. A. Shuganov. *Ibid.*, 253-8.—The structure of AuCN, similar to AgCN, is built up from chain-like mole. M-C-N-M-C-N, but the lattice is hexagonal and not rhombohedral, the Au atoms and the CN groups lying in alternate planes. The unit cell contains 1 mol.;  $c = 5.09 \text{ \AA}$ ,  $a = 3.40 \text{ \AA}$ ,  $b = 7.30$ , space group  $D_{2h}^+$  or  $D_{2h}^-$ . The difference in structure between AuCN and AgCN is attributed to the prevalence of a covalent structure with a double bond. S. P.

CHUGAN, Ye. A.; LEBANOV, G. G.

Röntgenographic investigation of crystal structure of  $\text{NaNO}_2$ .  
Inst. Krist., Akad. Nauk S.S.S.R. 4, 179-84 '48.  
(CA 47 no.13:6212 '53)

SHUGAM, YE. A.

PA 48/49T25

USSR/Chemistry - Naphthalenes  
Chemistry - Crystalline Structure

Jan 49

"Crystalline Structure of Dinitronaphthalenes:  
IV: Determining the Structure of a Crystal of  
2,6-Dinitronaphthalene," Ye. A. Shugam, M. N.  
Usanekiy, G. S. Zhdanov, I-Ray Lab, Physicochem  
Inst Imeni L. Ya. Karpov, Moscow, 10 pp

"Zhur Fiz Khim" Vol XIII, No 1

For organic structures in which molecule is  
elementary particle of crystal formation,  
determination of structure consists of three  
stages: (1) Determination of magnitude, form  
and type of elementary nucleus; (2) determination  
48/49T25

USSR/Chemistry - Naphthalenes (Contd) Jan 49

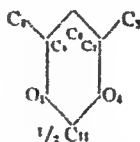
of condition of molecules' centers, and steric  
orientation of molecules in space of elementary  
nucleus; and (3) determination of the molecule.  
Gives table of molecules with data of adjacent  
atoms, graphs and illustrations of experimental  
results. Submitted 21 Apr 48.

48/49T25

SHU, AN, E. A.

C. 77

Structure of inner-complex compounds. E. A. Shugan.  
Doklady Akad. Nauk S.S.S.R. 81, 853-4 (1961).—The  
structure of Cu acetylacetonate (recrystd. by slow cooling  
of a hot soln. in  $\text{CHCl}_3$ ) was detd. by x-ray patterns, in



$\text{CuK}\alpha$  emission, from 314 reflections of the  $hkl$  type. The  
interat. distances are,  $\text{O}_1\text{-Cu} = 1.94 \text{ \AA}$ ,  $\text{Cu-O}_2$  1.88,  
 $\text{O}_1\text{-C}_1$  1.25,  $\text{O}_1\text{-C}_2$  1.30,  $\text{C}_1\text{-C}_2$  1.38,  $\text{C}_1\text{-C}_3$  1.44,  $\text{C}_2\text{-C}_3$  1.60,  
 $\text{C}_3\text{-C}_4$  1.58. The distances  $\text{C}_1\text{-C}_3$  and  $\text{C}_2\text{-C}_4$  are close to the  
 $\text{C-C}$  distance in  $\text{C}_6\text{H}_6$  (1.40  $\text{\AA}$ ). The distances  $\text{O}_1\text{-C}_1$  and  
 $\text{O}_2\text{-C}_2$  are close to the  $\text{C-O}$  distance in urea and other car-  
bonyl compds. On subsequent approximations, the dis-  
tances  $\text{Cu-O}_1$  and  $\text{Cu-O}_2$  decrease progressively. The  
differences in distances of corresponding atom pairs are  
probably due to exptl. inaccuracies, and should disappear  
with a sufficient no. of reflections involving light atoms;  
the distance  $\text{Cu-O}$  is  $1.91 \pm 0.03 \text{ \AA}$ , close to the sum of the  
covalent radii of Cu and O, 1.85  $\text{\AA}$ . The angle  $\text{O}_1\text{CuO}_2$ ,  
93°, is close to the theoretical 90°. N. Thon

SHUGAM, E.A.

Crystallochemistry of some inner complex salts. E. A. Shugam. *Uspekhi Khim.* 23, 622-34(1964).—The crystallochemistry of inner complex salts is discussed in review with the special topics phthalocyanines, complexes of metals with amino acids, and polycarbonyl compds. 43 references. G. M. Kosolapoff

SHUGAM, E. A.  
USSR/Chemistry

Card 1/1

Author : Shugam, E. A.

Title : Crystalline Structure of a Copper Acetyl-Acetoetherate.

Periodical : Zhur. Fiz. Khim. Vol. 28, Ed. 4, 643-644, Apr 1954

Abstract : Studies of copper acetyl-acetoetherate reveal that, the molecules found in the analyzed crystals have a transconfigurative form, and that, the volumetric ratio of the nucleus per molecular weight of a copper acetylacetoetherate  $n = \frac{690}{339} = 2.09$ . One reference. Drawing.

Institution : All-Union Institute of Chemical Reactors, Moscow.

Submitted : June 6, 1953

SHUGAM, Ye A.

USSR / Physical Chemistry, Crystals

B-5

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 25861

Author : Ye.A. Shugam, L.M. Shkol'nikova

Title : Study of Crystalline Structure of Aluminum and Chromium Acetylacetonates.

Orig Pub : Kristallografiya, 1956, 1, No 4, 478-482.

Abstract : An x-ray-structural study (methods of oscillations and of roentgenometer:  $\lambda$  Cu) of  $(C_5H_7O_2)_3 Al$  (I) and  $(C_5H_7O_2)_3 Cr$  (II) was carried out in order to compare the structure of intracomplex compounds containing metal atoms with various electron configurations. The crystals were obtained in the shape of plates and hexagonal prisms. The lattice parameters of I are:  $a=14.25$ ,  $b=7.68$ ,  $c=16.17$  Å,  $\beta=99^\circ 30'$ ,  $\rho$  (meas.) = 1.30,  $\rho$  (roent.) = 1.27; same of II are: 13.80, 7.58, 16.44,  $99^\circ 30'$ , 1.39, 1.37,  $Z=4$ , ph. gr.  $P2_1/C$ . On the basis of the isomorphism of the compounds, an identical spatial molecule model is proposed. The model is a de-

Card : 1/2

SHUGAM, Ye.A., kandidat khimicheskikh nauk.

X-ray method for determining phase composition of crystalline substances. Khim.prom.no.7:426-428 O-N '56. (MIRA 10:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov.

(X Rays--Industrial applications) (Chemistry, Analytical)  
(Crystallography)

USSR / Morphology of Crystals. Crystallization.

E-7

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 9365

Author : Shugan, Ye.

Inst : Institute of Chemistry of Reagents, Moscow

Title : Texture of Layers of Selenium Obtained by Elextrolysis.

Orig Pub : Zh. fiz. khimii, 1956, 30, No 8, 1732-1734

Abstract : It is shown that layers of selenium, separated by electrolysis in an acid medium, have a texture 1012. This texture does not change upon subsequent heat treatment and is independent of the current density over a range from one to 20 amperes per square decimeter. The layers of selenium obtained by electrolysis in an alkaline medium do not have a clearly pronounced texture.

Card : 1/1

SOV/70-3-6-18/25

AUTHORS: Shugam, Ye.A. and Shkol'nikova, L.M.

TITLE: Internally Complex Compounds Containing Me-S Bonds  
(Vnutrikompleksnyye soyedineniya, soderzhashchiye svyaz' Me-S)

PERIODICAL: Kristallografiya, 1958, Vol 3, Nr 6, pp 749 - 50 (USSR)

ABSTRACT: Sodium diethyl-dithio-carbamate is of particular interest as a reagent for Cu. Crystals of the Ni and Cu compounds were produced from acetone solution and examined using a retigraph and single crystal X-ray goniometers. The parameters of the unit cell of  $((C_2H_5)_2NCS_2)_2Ni$  are  $a = 6.23$ ,  $b = 11.62$ ,  $c = 11.55 \text{ \AA}$  and  $\beta = 95^\circ$ .  $d_{obs.} = 1.42 \text{ g/cm}^3$ ,  $Z = 1.97 = \text{approx. } 2$ . There was no detectable piezoelectric effect and the space group is  $P2_1/c$ . It follows from the space groups that the molecules have a centre of symmetry and that the S atoms are distributed round the Ni in a square. For the Cu analogue, the cell dimensions are:  $a = 10.03$ ,  $b = 10.75$ ,  $c = 16.65 \text{ \AA}$ ,  $\beta = 113^\circ$ ,  $d_{obs.} = 1.46 \text{ g/cm}^3$ ,  $Z = 3.94 = \text{approx. } 4$  and the appropriate

Card1/3

SOV/70-3-6-18/25

Internally Complex Compounds Containing Me-S Bonds

space group is  $P2_1/c$ . Although the space group imposes no restrictions it may be assumed that the configuration of the S atoms round the Cu is a square. The xy Patterson projection confirms this planar arrangement. The Cu and Zn compounds may be isomorphous (Acta Crystall. 1953, Vol 6, p 430) but no other chelation compounds of Zn are reported with this configuration. Crystals of zinc 1.8-thioxinate,  $(C_9H_6NS)_2Zn$  have the diffraction group  $mmmIb$  with cell dimensions  $a = 13.0$ ,  $b = 15.6$ ,  $c = 15.9 \text{ \AA}$ ,  $Z = 7.92 = \text{approx. } 8$ ,  $d_{\text{obs.}} = 1.57 \text{ g/cm}^3$ . There is a piezoelectric effect and the space group is therefore  $Ibm2$ . There are 2 figures and 9 references, 3 of which are Soviet and 6 English.

Card2/3

SOV/70-3-6-18/25

Internally Complex Compounds Containing Me-S Bonds

ASSOCIATION: Institut khimicheskikh reaktivov  
(Institute of Chemical Reagents)

SUBMITTED: August 15, 1959

Card 3/3

SHUGAM, Ye.A.; LEVINA, V.M.

Use of x-ray phase analysis in the solution of various problems  
in the production of chemical reagents. Report No.1. Trudy  
IREA no.22:50-52'58. (MIRA 14:6)

(Chemical tests and reagents)  
(X rays—Industrial applications)

SHUGAN, Ya.A.

Crystal structure of nickel salicyl aldoxime. Trudy IREA  
no.22:53-55 '58.

(MIRA 14:6)

(Nickel compounds)  
(Salicylaldehyde)

SHUGAM, Ye. A.

SHUGAM, Ye. A.; LEVINA, V. M.

"The Crystal and Molecular Structure of Nickel Diethyldithiocarbonate  $\text{Ni}[\text{S}_2\text{CN}(\text{C}_2\text{H}_5)_2]_2$ "

a report presented at Symposium of the International Union of  
Crystallography Leningrad, 21-27 May 1959

RUSSIAN BOOK INFORMATION NOV/1910

Moscow. Vsesoyuzny nauchno-issledovatel'skiy institut khimicheskikh reaktivov  
Veshchestva vysokoy chistoty i reaktivy; sbornik statey (High Purity Substances  
and Reagents; Collection of Articles), Moscow, Gokhimiizdat, 1959.  
186 p. (Series: Izdat'stvo, VV. 23) Brains slip inserted. 1,700  
copies printed.

Sponsoring Agency: USSR, Soviet Ministry. Gosstatizvuzhnyi komitet po khimii.

Ed.: Yu.V. Izrael; Tech. Ed.: Ye.G. Shpak; Editorial Board of Series:  
V.G. Brada, V.M. Baidakov, P. G. Gerasimov, G.G. Kuznetsov, A.M. Kuznetsov,  
G.G. Malin, G.I. Mikheyev, G.A. Pavlov (Deputy Reg. Ed.), and  
I.G. Shafra.

PURPOSE: This book is intended for personnel of chemical research and industrial  
chemical laboratories.

CONTENT: The book contains 56 articles by scientists of the Scientific Research  
Institute for Chemical Reagents (VRI) treating methods which may be adopted  
by different branches of industry in producing, analyzing, and studying inor-  
ganic and organic substances of high purity. Figures, tables, and references  
accompany each article. No personalities are mentioned.

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in a Number of High Purity Substances 83

Kuznetsov, G.G. Colorimetric Determination of Heavy Metals With the Aid  
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Baidakov, V.M., A.M. Kuznetsov, and G.G. Kuznetsov. Determining Amine  
Catalysis in Sodium Iodide Single Crystals Activated by Thallium 102

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Radical and Free Group of the Sodium Salt of Cobalt (III)-  
ethylendiaminetetracarboxylic Acid 156

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AVAILABLE: Library of Congress

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34/10/10

SHUGAM, Ye.A.; SHKOL'NIKOVA, L.M.

Determination of the unit cell and space group of sodium  
ethylenediaminetetraacetocobaltate (III). Trudy IRRA  
no.23:166-168 '59. (MIRA 13:7)  
(Cobalt compounds)

24(4), 5(1)

SOV/32-25-2-27/78

AUTHORS:

Gol'der, G. A., Zhdanov, G. S., Levina, V. M., Novosel'skaya, G. N., Shugam, Ye. A.

TITLE:

The Use of X-Ray Phase Analysis in Chemical Technology (Primeneniye rentgenovskogo fazovogo analiza v khimicheskoy tekhnologii)

PERIODICAL:

Zavodskaya Laboratoriya, 1959, Vol 25, Nr 2, pp 181 - 182 (USSR)

ABSTRACT:

The present paper lists the results of investigations carried out by the laboratories of the plants "Svobodnyy trud", Yaroslavl', GIPI-4, IRYeA, "Krasnyy khimik", Leningrad, Fiziko khimicheskiiy institut im. L. Ya. Karpova (Physico-Chemical Institute imeni L. Ya. Karpov) and others. A standard domestic X-ray apparatus was used. Since the X-ray phase analysis has a low sensitivity for impurities, it should not be used for determining small amounts of impurities (less than 1-3%). 6 analyses of different substances are described: 1) A study of titanium dioxide aimed at determining the optimum production conditions of rutile. 2) In the case of a lead oxide it was found by X-ray analysis that the

Card 1/2

The Use of X-Ray Phase Analysis in Chemical Technology

SOV/32-25-2-27/78

yellow substance did not correspond to the usual red tetragonal modification of  $PbO$ , but to the yellow rhombic modification, and that the color was due to a polymorphous change. 3) By means of X-ray analysis it was possible to simplify the production control of active pyrolusite of the GAP. 4) Examinations of domestic and foreign recording tapes were carried out to determine the dispersion degree of the iron oxide. 5) Moreover, the production of thiourea was controlled with regard to dicyan-diamide. 6) The X-ray analysis was also successfully used in the examination of luminophores, and can also be applied for the examination of other substances (e.g. catalysts).

ASSOCIATION: Nauchno-issledovatel'skiy fiziko-khimicheskiy institut im. L. Ya. Karpova (Scientific Research Institute of Physical Chemistry imeni L. Ya. Karpov)

Card 2/2

SOV/74-28-7-5/5

5(4)

AUTHORS:

Shagan, Ye. A., Shkol'nikova, L. M.

TITLE:

X-ray Structure Investigations of Intracomplex Compounds  
(Rentgenostrukturnyye issledovaniya vnutrikompleksnykh soyedineniy)

PERIODICAL:

Uspekhi khimii, 1959, Vol 28, Nr 7, pp 889 - 901 (USSR)

ABSTRACT:

The present paper gives a survey of the test results in the field of intracomplex compounds obtained by means of the X-ray structure method in the last 5 years. Just as in reference 1, the compounds referred to are the non-electrolytes. For easier presentation and systematization of experimental data according to structure the investigated intracomplex compounds were divided into groups based on the respective properties of the cycle-forming atoms of the ligand molecule. 1) Complexes in which the metal atom is linked with nitrogen and oxygen atoms: salicyl aldoximate of nickel  $(C_6H_5OCHNOH)_2Ni$ ; dihydrate of the oxyquinolate of zinc  $(C_9H_6NO)_2Zn \cdot 2H_2O$ ; dihydrate of the oxyquinolate of copper  $Cu(C_9H_6ON)_2 \cdot 2H_2O$ ; 5-chlorosalicyl aldoximate of bivalent nickel  $(C_6H_4ClOCHNOH)_2Ni$  and palladium

Card 1/3

X-ray Structure Investigations of Intracomplex Compounds. SOV/74-28-7-5/5

( $C_6H_3ClOCHHOH$ )<sub>2</sub>Pd; salicylal iminates of nickel ( $C_7H_6ON$ )<sub>2</sub>Ni, copper ( $C_7H_6ON$ )<sub>2</sub>Cu, and palladium ( $C_7H_6ON$ )<sub>2</sub>Pd; N-methylsalicylal iminate of nickel ( $C_8H_8ON$ )<sub>2</sub>Ni. 2) Complexes in which the metal atom is linked with nitrogen atoms: dimethylglyoximate of copper ( $C_4H_6N_2O_2$ )<sub>2</sub>Cu. 3) Complexes in which the metal atom is linked with oxygen atoms: acetylacetonates of iron ( $C_5H_7O_2$ )<sub>3</sub>Fe, chromium ( $C_5H_7O_2$ )<sub>3</sub>Cr, aluminum ( $C_5H_7O_2$ )<sub>3</sub>Al, nickel ( $C_5H_7O_2$ )<sub>2</sub>Ni, thorium ( $C_5H_7O_2$ )<sub>4</sub>Th and beryllium ( $C_5H_7O_2$ )<sub>2</sub>Be. 4) Complexes in which the metal atom is linked with sulfur and nitrogen atoms: 8-mercaptoquinolines of zinc ( $C_9H_6SN$ )<sub>2</sub>Zn, palladium ( $C_9H_6SN$ )<sub>2</sub>Pd, and platinum ( $C_9H_6SN$ )<sub>2</sub>Pt. 5) Complexes in which the metal atom is linked with sulfur atoms: diethyldithiocarbamate of nickel [ $S_2CN(C_2H_5)_2$ ]<sub>2</sub>Ni, copper [ $S_2CN(C_2H_5)_2$ ]<sub>2</sub>Cu, zinc [ $S_2CN(C_2H_5)_2$ ]<sub>2</sub>Zn and lead [ $S_2CN(C_2H_5)_2$ ]<sub>2</sub>Pb. Cyclic grouping is characteristic of the structure of intracomplex compounds. This

Card 2/3

24.7100, 5.5100

78090  
SOV/70-5-1-5/30

AUTHORS: Shkol'nikova, L. M., Shugam, Ye. A

TITLE: Crystal and Molecular Structure of Chromium Acetylacetonate

PERIODICAL: Kristallografiya, 1960, Vol 5, Nr 1, pp 32-39 (USSR)

ABSTRACT: The authors observed that despite numerous studies, there exists an inadequacy of knowledge on acetylacetonates, and also contradictions in the interpretations of their interatomic bonds. The present study was aimed to determine the interatomic distances, the nature of metal-to-ligand bonds, and the delocalization of double-bonds in the six-member cycles of acetylacetonates. Preceding spectroscopic studies have shown the decrease of the energy of characteristic frequencies of  $C=O$  and  $C=C$  bonds, in other words, the delocalization of double bonds. The authors' previous study of  $(C_5H_7O_2)_3Cr$  crystals (Kristallografiya, 1956, 1, 4, 4/8) disclosed 4 oxygen atoms at the vertices of a square around Cr

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Crystal and Molecular Structure of  
Chromium Acetylacetonate

78096  
SOV/70-5-1-5/30

atom, although the precise position of the square could not be established because of overlapped positions of O maxima on the electron density projections. The O maxima could now be resolved by using (001) projections instead of (010). The square of  $O_3$ ,  $O_4$ ,  $O_5$ ,  $O_6$  atoms (see Fig. 1) and one of the acetylacetonate rings, parallel to the square, proved to be inclined to (010) of the first model under  $15^\circ$ . Considering the sides of the square to be a and c axes, and taking b axis under  $15^\circ$  to  $O_1CrO_2$  bond direction, a rearranged model was made. Referring to this model, the coordinates of 8 out of 15 C and of all O and Cr atoms were calculated by the method of three dimensional Fourier synthesis of the electron density distribution. On the basis of found coordinates and further refinement, the final model was made with b axis under  $28^\circ$  to the  $O_1CrO_2$  bond, and referring to this model, the coordinates of 4 more C atoms were determined and the others recalculated. The positions of the remaining 3 of

Card 2/1

Crystal and Molecular Structure of  
Chromium Acetylacetonate

78096

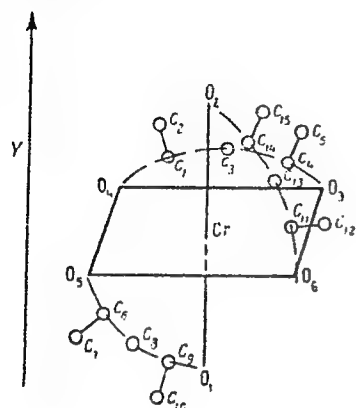
SOV/10-5-1-5/30

C atoms were taken by a geometrical inspection of the model. The chromium acetylacetonate molecule as a whole resembles an octahedron in which Cr occupies the body center and acetylacetonate rings lie around Cr roughly in three planes under  $90^\circ$  to each other; C and O atoms are maximum at  $\pm 0.06$  Å from the respective planes, except for C<sub>9</sub> and C<sub>14</sub> at 0.14 and 0.13 Å, respectively. The mean bond angle at Cr is  $93^\circ$  (see Fig. 4). Here and in Cu and Ni acetylacetonates metal-to-oxygen distance is 1.90 Å no matter whether or not the particular metal is able to form  $\pi$ -bond with p-electron of O. Apparently,  $\sigma$ -bond, if it occurs, is not strong and hardly reduces the interatomic distance below its value as the sum of covalent atomic radii.

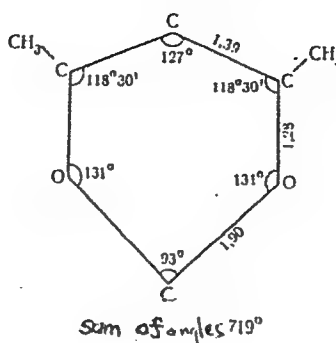
In conclusion, the authors state that  $\pi$ -interaction of atoms is not likely to be the necessary condition for the delocalization of double bonds in

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Chromium Acetylacetonate



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Key to Table 1. (a) Atoms;  
(b) coordination from  
the third three dimen-  
sional synthesis

(a)	(b)		
	x	y	z
Cr	0,239	0,246	0,219
O <sub>1</sub>	0,290	0,026	0,195
O <sub>2</sub>	0,178	0,465	0,230
O <sub>3</sub>	0,192	0,155	0,314
O <sub>4</sub>	0,116	0,176	0,156
O <sub>5</sub>	0,288	0,334	0,127
O <sub>6</sub>	0,362	0,314	0,284
C <sub>1</sub>	0,114	0,070	0,324
C <sub>2</sub>	0,104	0,024	0,415
C <sub>3</sub>	0,040	0,043	0,258
C <sub>4</sub>	0,044	0,099	0,176
C <sub>5</sub>	-0,048	0,059	0,116
C <sub>6</sub>	0,341	0,264	0,078
C <sub>7</sub>	0,383	0,325	0,007
C <sub>8</sub>	0,363	0,086	0,084
C <sub>9</sub>	0,354	-0,020	0,150
C <sub>10</sub>	0,382	-0,216	0,140
C <sub>11</sub>	0,386	0,464	0,318
C <sub>12</sub>	0,490	0,490	0,364
C <sub>13</sub>	0,308	0,594	0,312
C <sub>14</sub>	0,299	0,599	0,278
C <sub>15</sub>	0,155	0,771	0,278

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Crystal and Molecular Structure of  
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(a)			
Cr—O <sub>1</sub>	1,88	C <sub>1</sub> —C <sub>2</sub>	1,36
Cr—O <sub>2</sub>	1,88	C <sub>1</sub> —C <sub>7</sub>	1,43
Cr—O <sub>3</sub>	1,91	C <sub>4</sub> —C <sub>8</sub>	1,39
Cr—O <sub>4</sub>	1,93	C <sub>9</sub> —C <sub>6</sub>	1,37
Cr—O <sub>5</sub>	1,88	C <sub>11</sub> —C <sub>13</sub>	1,38
Cr—O <sub>6</sub>	1,93	C <sub>11</sub> —C <sub>15</sub>	1,40
(b) 1,90±0,03		1,40±0,04	
O <sub>1</sub> —C <sub>9</sub>	1,29	C <sub>1</sub> —C <sub>2</sub>	1,56
O <sub>2</sub> —C <sub>14</sub>	1,32	C <sub>4</sub> —C <sub>5</sub>	1,50
O <sub>3</sub> —C <sub>1</sub>	1,29	C <sub>6</sub> —C <sub>7</sub>	1,50
O <sub>4</sub> —C <sub>4</sub>	1,24	C <sub>9</sub> —C <sub>10</sub>	1,57
O <sub>5</sub> —C <sub>6</sub>	1,28	C <sub>11</sub> —C <sub>12</sub>	1,53
O <sub>6</sub> —C <sub>11</sub>	1,28	C <sub>14</sub> —C <sub>15</sub>	1,50
1,28±0,04		1,53±0,04	

Table 3. (a) Interatomic spacing in a molecule of chromium acetylacetonate; (b) average

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acetylacetonate cycles. They assume that displacement of electrons in the cycle due to the formation of  $\pi$ -donor-acceptor bond can under favorable conditions lead to delocalization of double bonds. One of the favorable factors is the formation of six-member cycles having two conjugated bonds, since here  $\pi$ -bond is especially energetically favorable. There are 4 figures; 3 tables; and 20 references, 5 U.S., 5 U.K., 4 Soviet, 3 Danish, 2 Japanese, 1 German. The most recent U.S. and U.K. references are: R. P. Dryden, A. Winston, J. Phys. Chem., 62, 635, 1958; R. L. Belford, M. Calvin, G. Belford, J. Chem. Phys., 26, 5, 1165, 1957; E. Frasson, et al., J. Inorg. and Nucl. Chem., 8, 452, 1958; R. West, R. Riley, J. Inorg. and Nucl. Chem., 5, 4, 295, 1958; G. Costa, A. Puxeddu, J. Inorg. and Nucl. Chem., 8, 104, 1958. Institute of Chemical Reagents (Institut khimicheskikh reaktivov)

ASSOCIATION:

SUBMITTED:

September 7, 1959

Card 7/7

SHUGAM, Ye.A.; LEVINA, V.M.

$\pi$ -bonds in the molecule of nickel diethyldithiocarbamate. Kristallografiya 5 no.2:257-260 ~~M~~-Ap '60. (MIRA 13:9)

1. Vsesoyuznyy institut khimicheskikh reaktivov.  
(Nickel compounds) (Chemical bonds)

*Shugam, Ye. A.*

5.3100

81864

S/020/60/133/02/38/068  
B016/B060

AUTHORS: Shugam, Ye. A., Shkol'nikova, L. M.

TITLE: On the Chemical Bond in the Molecules of Acetyl Acetonates of Trivalent Metals

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 2, pp. 386-387

TEXT: The authors studied the isomorphous crystals of acetyl acetonates, of aluminum (I), chromium, and cobalt (III) by radiography. The said substances were separated from solutions in benzene, acetone or chloroform by slowly evaporating the solvent. Pictures were taken with copper radiation. The authors applied the method of isomorphous substitution. The values of the mean interatomic distances and of the valence angle in the molecules of I, II, and III are specified. In the acetyl acetates investigated, the metal atom forms 6 equivalent covalent bonds. The double bonds C=C and C=O are delocalized in the acetyl-acetone ring. The authors believe on the strength of the foregoing that the type of Me-O bond and the mentioned delocalization in the said ring are independent of the state of the electrons on the d-orbits of metal atoms. In the

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S/020/60/133/02/38/068  
B016/B060On the Chemical Bond in the Molecules of Acetyl  
Acetonates of Trivalent Metals

molecules of the acetyl acetonates of transition metals which either possess or do not possess a nonseparated electron pair at the d-orbits, as well as in the molecule of the aluminum-acetyl acetonates, in the atom of which the d-electrons are missing, the double bonds are delocalized regardless of the nature of the metal atom (in accordance with D. N. Shigorin, Ref. 5). The authors believe on the basis of the values of the interatomic distances lying near I, II, and III, that no multiple Me-O bonds are formed with the participation of nonseparated pairs of the d-electrons of the metal atom and of the  $\pi$ -electron of the oxygen of the acetyl acetone ring (contrary to Refs. 6, 7). The  $\pi$ -bonds of Me-O completing the system of conjugate C=O and C=C bonds by a third double bond on the delocalization of the double bonds, apparently have another nature which is in no relationship with the d-electrons of the metal atom. The p-orbits of the metal atom (Ref. 9) are possibly utilized in the common system of the  $\pi$ -interaction in the acetyl acetone ring. The assumption according to which the d-electrons of the metal atom do not participate in the multiple Me-O bonds, is in agreement with conceptions regarding the crystalline field. On the strength of experimental data, the acetyl acetone group  $C_5H_7O_2^-$  does not form any strong crystalline field (Ref. 8). Con-

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SHKOL'NIKOVA, L.M.; SHUGAM, Ya.A.

Crystal structure of cotalt (III) acetylacetonate. Zhur. strukt.  
khim. 2 no.1:72-73 Ja-F '61. (MIRA 14:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh  
reaktivov.

(Cobalt compounds)

SHUGAM, Ye.A.; SHKOL'NIKOVA, L.M.

Using the statistical method for determining the space group of  
copper pyridinate. Kristallografiia 7 no.4:534-536 J1-Ag '62.  
(MIRA 15:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh  
reaktivov.

(Pyridine) (Crystallography)

SHKOL'NIKOVA, L.M.; SHUGAM, Ye.A.

X-ray diffraction study of copper (II) cupferronate (nitro-  
sophenylhydroxylamine). Zhur'strukt.khim. 4 no.3:380-386  
My-Je '63. (MIRA 16:6)  
(Copper compounds) (X-ray diffraction examination)

SHUGAM, Ye.A.

Stability of the complex compounds of transition metals. Dokl.  
AN SSSR 149 no.2:348-350 Mr '63. (MIRA 16:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh  
reaktivov i osobo chistykh khimicheskikh veshchestv. Predstavleno  
akademikom I.V.Tananayevym.  
(Transition metals) (Complex compounds)

SHKOL'NIKOVA, L.M.; SHUGAM, Ye.A.

Crystallochemical data of the inner-complex compounds of N-substituted derivatives of salicylalimine. Part 2: Copper and nickel salicylal alkyl iminates. Zhur. strukt. khim. 5 no.4:590-593 Ag '64. (MIRA 18:3)

1. Institut khimicheskikh reaktivov i osobo chistykh veshchestv.

SHUGAM, Ye.A.; BERGER, L.I.; RUKHADZE, Ye.G.; PANOVA, G.V.

Absorption spectra, conductance and its energy of activation of some salicylal-N-alkylamines. Zhur. fiz. khim. 39 no.2:481-483 (MIRA 18:4)  
F '65.

1. Institut khimicheskikh reaktivov Vsesoyuznogo nauchno-is-sledovatel'skogo institut khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv i Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

L 20612-66 EWT(m)/EWP(j)/T RM

ACC NR: AP6010752

SOURCE CODE: UR/0076/66/040/003/0741/0743

AUTHOR: Nasirdinov, S. B.; Shugam, Ye. A.; Berger, L. I.; Plyushchev, V. Ye.; Shklover, L. P. 47 B

ORG: All-Union Scientific Research Institute of Chemical Reagents and High Purity Chemicals (Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv)

TITLE: Electrical conductivity of phthalocyanines of certain metals

SOURCE: Zhurnal fizicheskoy khimii, v. 40, no. 3, 1966, 741-743

TOPIC TAGS: organic semiconductor, phthalocyanine, electric conductivity

ABSTRACT: The effect of the metal atom on the thermal activation energy for conduction of certain metal-containing phthalocyanines has been studied and the activation energy was correlated with the position of the peak in the long wavelength (320 to 1100 mμ) region of the absorption spectrum. To this end, the temperature dependence of conductivity was measured and absorption spectra were recorded for phthalocyanines of transition metals of groups IV (titanium, zirconium, and hafnium) and VIII (nickel, palladium, and platinum) of the periodic table. Chloro derivatives of the phthalocyanines were used in all cases except that of nickel. Electrical measurements were carried out for pellet samples in vacuum ( $10^{-3}$  mm Hg) at 25 to 230C. It was found that the temperature dependence of conductivity obeyed an exponential law in all

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ACC NR: AP6010752

cases. Electrical conductivities varied from  $5 \times 10^{-13}$  to  $2 \times 10^{-10}$  mho/cm and activation energies from 1.35 to 1.60 eV. The activation energy and the energy required for transition of the chlorophthalocyanines changed symbatically and rose with increasing atomic number of the metal. It is suggested that this rise is associated with an increase in the donor-acceptor interaction between the metal atom and nitrogen atoms in the phthalocyanines. The energy of electrons in the conducting state was lower than the energy of the lowest excited state. [SM]

SUB CODE: 20, 11/ SUBM DATE: 23Jul65/ ORIG REF: 006/ OTH REF: 007/ ATD PRESS: 4124

Card 2/2 BK

L 01020-01 DWI(M)/DWI(J) 1010/ 101

ACC NR: AP6034154 SOURCE CODE: UR/0076/66/040/010/2614/2616

AUTHOR: Nasirdinov, S. D.; Shugam, Ye. A.; Berger, L. I.; Shklover, L. P.; Gurevich, M. Z.

ORG: All-Union Institute of Chemical Reagents (Vsesoyuznyy institut khimicheskikh reaktivov)

TITLE: Electrical conductivity of polymeric phthalocyanines of certain transition metals

38  
B

SOURCE: Zhurnal fizicheskoy khimii, v. 40, no. 10, 1966, 2614-2616

TOPIC TAGS: organic semiconductor, semiconducting polymer, poly-phthalocyanine

ABSTRACT: Polymeric phthalocyanines of scandium, cobalt, and zirconium have been prepared and their electrical properties have been studied. It is noted that previously electrical properties had been studied only for the polymeric phthalocyanine of copper. The polymers were dark powders insoluble in dimethylformamide and  $\alpha$ -bromonaphthalene, and readily soluble only in concentrated  $H_2SO_4$ . The temperature dependence of conductivity was measured at 20--250C for pressed pellet samples in a stream of dry argon, and the thermal activation energy for conduction was determined and correlated with the most intense long-wave

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UDC: 631.315.592

L 07320-61

ACC NR: AP6034154

absorption band in the visible region. It was found that the temperature dependence of conductivity obeys an exponential law. Measurement of the temperature dependence of thermoelectric power showed that the conduction was n-type in the entire temperature range. The conductivity at 293K for the polymers was in the range  $10^{-7}$  to  $10^{-9}$  mho/cm. The activation energy varied from 0.53 to 0.62 ev, values much lower than for the monomers. The activation energy varied symbatically with optical excitation energy. Orig. art. has: 2 tables.

SUB CODE: 11, 20/ SUBM DATE: 17Dec65/ ORIG REF: 004/ OTH REF: 005  
 ATD PRESS: 5101

Card 2/2 *lc*

SHUGAM, Ye.A.; SHKOL'NIKOVA, L.M.

Concerning the article by M.A. Porai-Koshits and M.P. Zorkii  
"Laws governing the structure of inner complex compounds of  
copper and nickel." Zhur.strukt.khim. 2 no.5:619-620 S-O '61.  
(MIRA 14:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut reaktivov.  
(Copper compounds) (Nickel compounds)  
(Porai-Koshits, M.A.) (Zorkii, M.P.)

ARC NR: AT6036573

SOURCE CODE: UR/0000/66/000/000/0188/0189

41

AUTHOR: Kalinina, A. N.; Stepanov, B. G.; Shugam, Ye. I.

ORG: none

TITLE: Visual image recognition and visual determination of the degree of similarity between images [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 188-189

TOPIC TAGS: vision, pattern recognition, space psychology, visual test

ABSTRACT: In previous experiments, one of the authors, using a special electronic assembly, observed an artificially retarded process of pattern recognition. Based on this observation, a description of the characteristic peculiarities of two approaches to recognition was given: The use of one yields a small number of errors but is characterized by the retardation of the recognition process; the use of the second is characterized by more rapid recognition but a higher number of errors. After analyzing the experimental data, it was proposed that under certain reception conditions, the speed of recognition prevailed with no substantial loss of accuracy.

The verification of this observation was one of the purposes of the present investigations. Another aim was to reveal the nature of

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ACC NR: AT6036573

connection between recognition and the similarity of certain patterns.

Simple, contour patterns were used. The contour was broken down into portions of equal length. By erasing various portions, lined patterns containing various amounts of information were derived. The position of the lines was arranged using a table of random numbers. The patterns were arranged in three groups according to the amount of information. The pattern presentation proceeded from a small to a large amount of information. The order of presentation within groups was random and uniform for all subjects.

Two series of experiments were conducted. First, tests for recognition of graphic patterns were conducted. Here, the two methods of recognition were revealed and it was demonstrated that the second method had the advantage of higher speed and quantity of test objects to be recognized for the majority of patterns in a given class.

To solve the problem of the link between recognition and similarity, a second series of experiments was conducted in which the similarity of a pattern to its standard was measured. It was necessary to compose a series with progressive similarity, i.e., each subsequent

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pattern had to be more similar than the preceding to its standard. A number was assigned to each pattern. The distribution of numbers assigned to a given pattern by various subjects was constructed and the mathematical prediction and dispersion of distributions was calculated. Later, the mathematical prediction was used to evaluate the degree of pattern similarity with its standard. After processing these results, it was possible to isolate 9 of 20 patterns in each series which significantly differed from the standard.

Experimental verification of these patterns according to the same scheme used in a preceding test showed that of ten subjects, eight assigned a given pattern the same number and that the distribution of pattern numbers in the abridged and unabridged series was identical.  
[W.A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

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